

Chapter 3 General Storage Requirements



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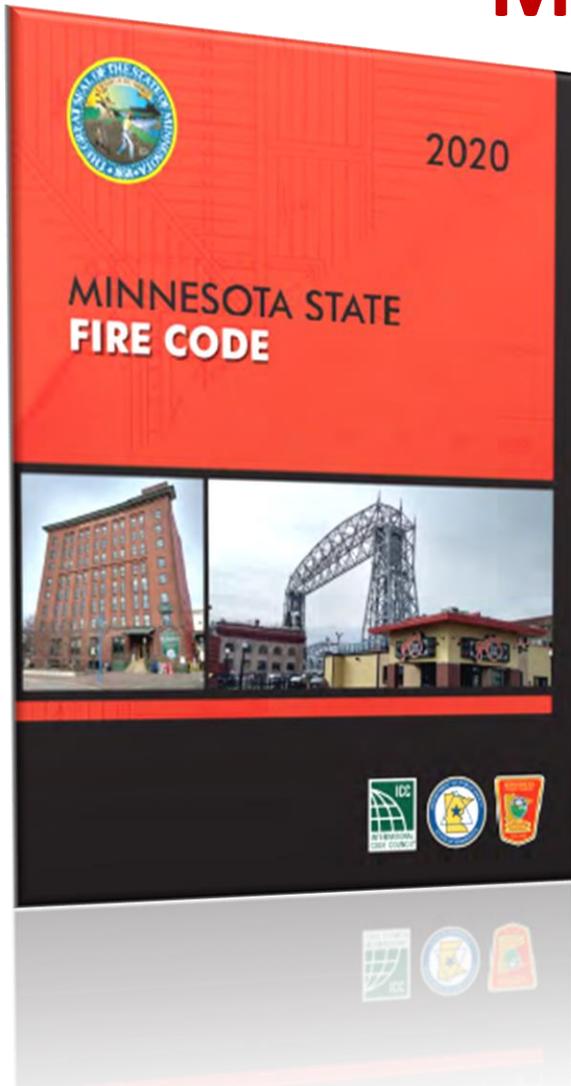
Deputy State Fire Marshal

MINNESOTA STATE FIRE MARSHAL DIVISION

445 Minnesota Street; Suite 145 Saint Paul, MN 55101

Introduction

Minnesota State Fire Code Chapter 3 Storage



- Section 304.3 control of combustible waste material *PAGE 56*
- Sections 315.1 through 315.6 on general storage
- Sections 315.2 through 315.7 on outdoor pallet storage
PAGES 61, 62

Waste and Rubbish

When in containers awaiting collection it is “being stored”

~~Section 304.3.2~~ 1 Cubic Yard
IFC language deleted from the 2020 MSFC

Section 303.3.3 For containers over 1.5 Cubic Yards

~~Section 303.3.4~~ 5.33 Cubic Foot
IFC language deleted from the 2020 MSFC

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Waste and Rubbish

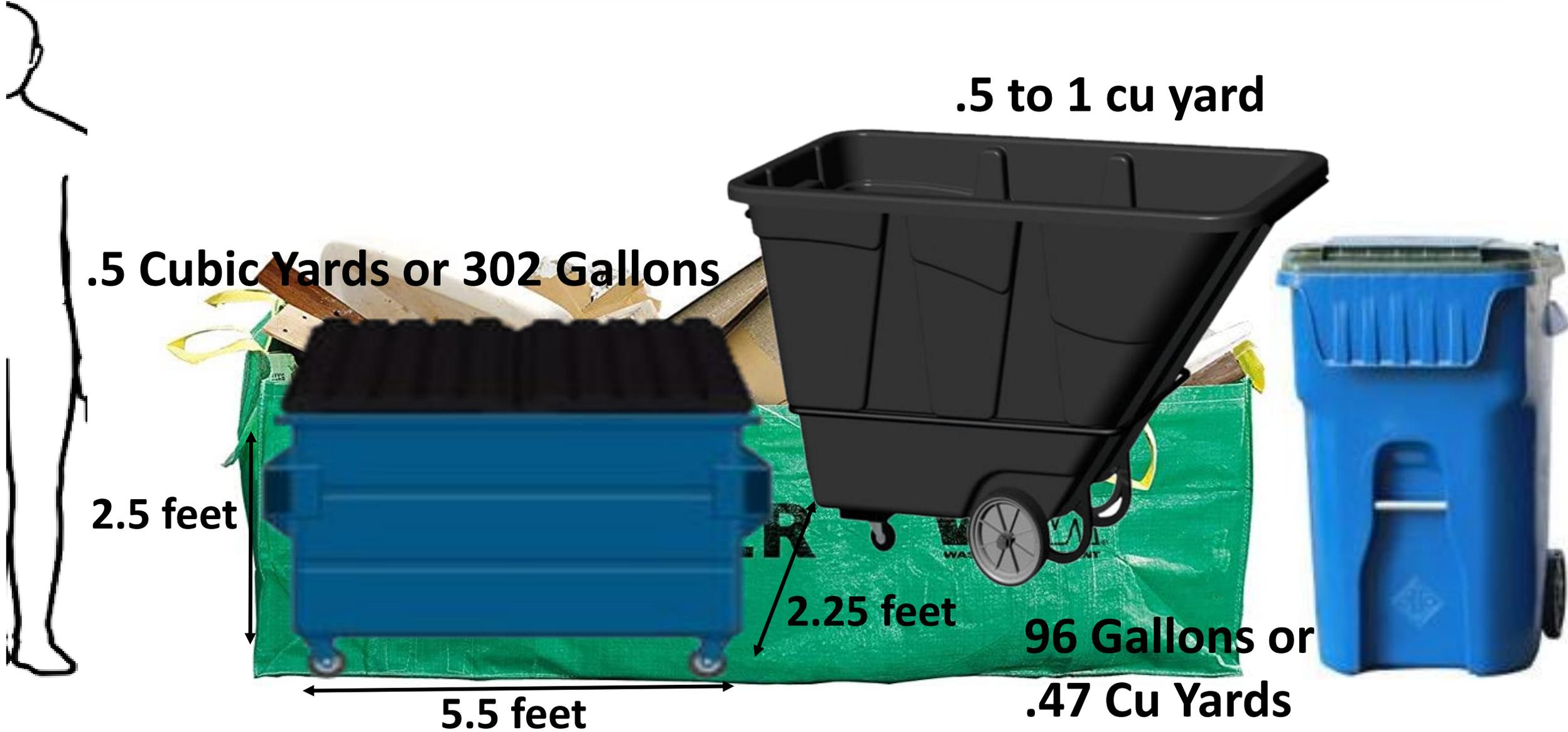
Containers with an individual capacity of 1.5 cubic yards or more cannot be stored in buildings or placed within 5 feet of combustible construction or openings.



Photo from thehour.com

Section 304.3.3

Waste and Rubbish



Waste and Rubbish

Dumpster Exceptions

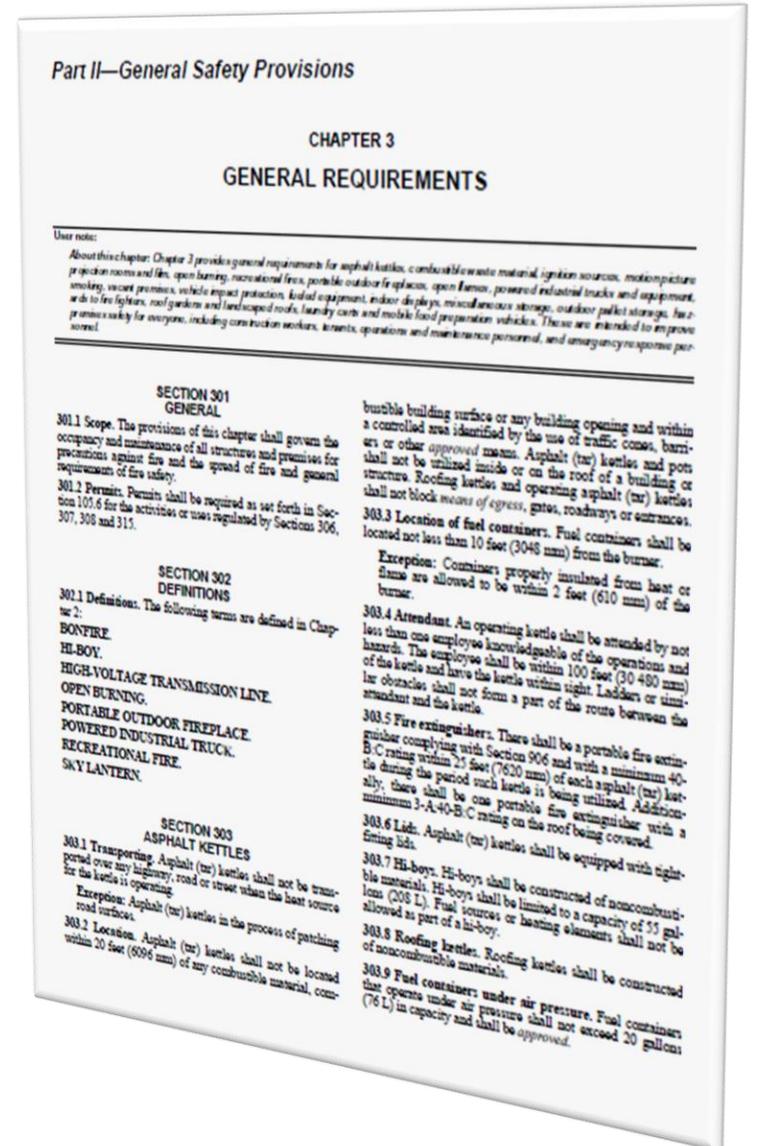
- Dumpsters or containers that are placed inside buildings in areas protected by an *approved automatic sprinkler system*,
- Dumpsters or containers that are located next to buildings where the exterior area is protected by an approved automatic sprinkler system,
- Storage in a structure is allowed if the structure Type I or IIA construction, located further than 10 feet from other buildings and is designed specifically for dumpster storage.

Section 304.3.3 Exception

Section 315

Section 315.1 through Section 315.6

General Storage Requirements



Section 315 General Information

- Where a material in storage is specifically regulated by another section of the code, that section would apply in addition to any applicable provisions in Section 315.
- If the storage meets the Section 202 definition of high piled storage then the provisions of Chapter 32 would apply



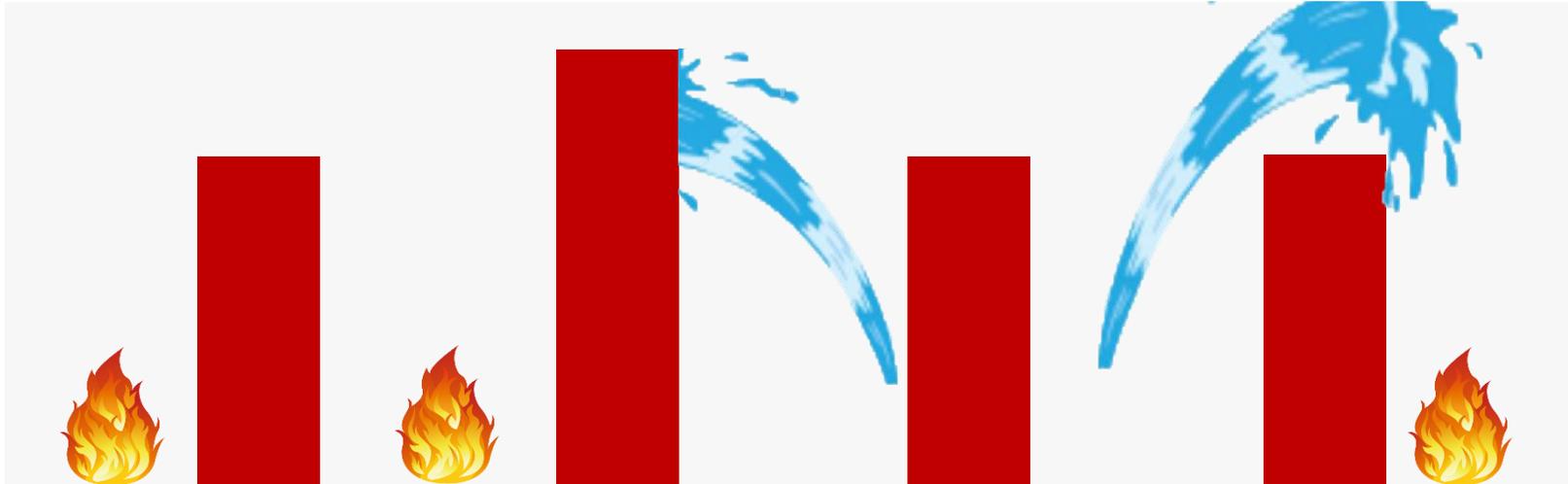
Storage inside Buildings

Storage of materials in buildings shall be orderly and stacks shall be stable. Storage of combustible materials shall be separated from heaters or heating devices by distance or shielding so that ignition cannot occur.

Ceiling Clearance

Storage shall be maintained...

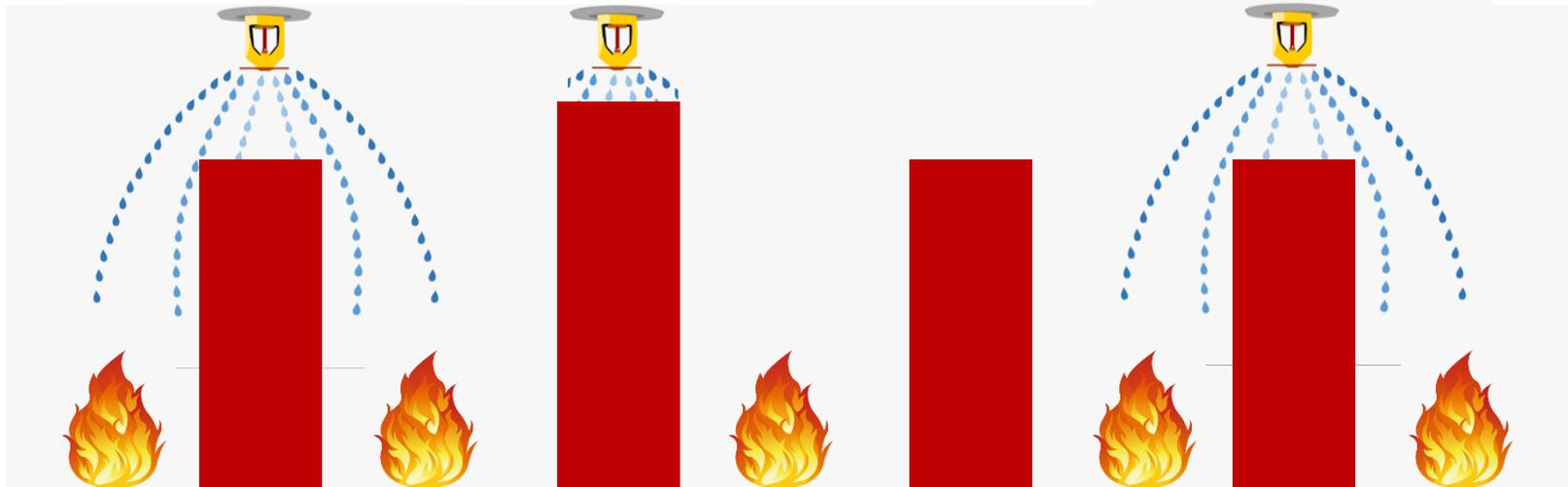
- 2 feet or more below the ceiling in nonsprinklered areas of buildings



Ceiling Clearance

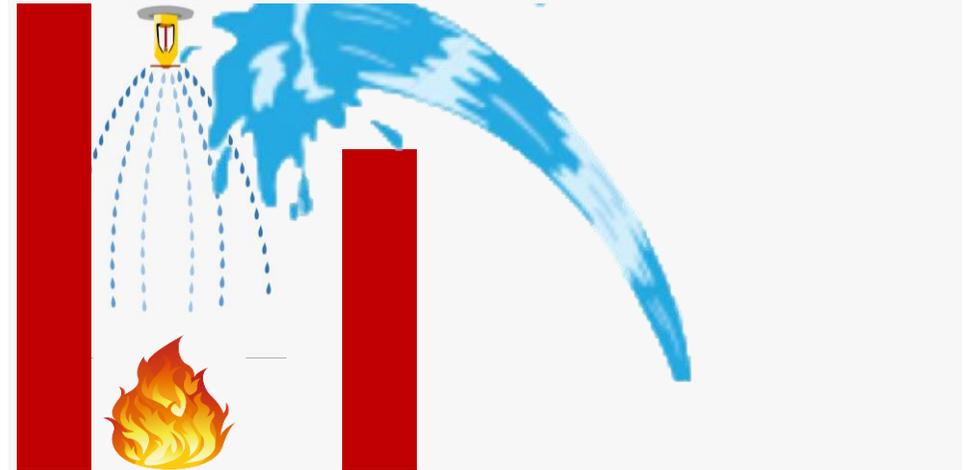
Storage shall be maintained...

- minimum of 18 inches below sprinkler head deflectors in sprinklered areas of buildings



Ceiling Clearance

- The 2-foot ceiling clearance is not required for storage along walls in nonsprinklered areas of buildings.
- The 18-inch ceiling clearance is not required for storage along walls in areas of buildings equipped with an automatic sprinkler system



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Means of Egress

Combustible materials shall not be stored in *exits* or enclosures for *stairways* and *ramps*.



**Bottom of stairwell covered
by 315.3.2**



**Exit access/ corridor covered
in Chapter 10**

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Equipment Rooms

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Combustible storage in

- boiler rooms,
- mechanical rooms,
- electrical equipment rooms,
- elevator equipment rooms.

Must meet the requirements of Sections 315.3.3.1 through 315.3.3.4

Equipment Rooms

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- Storage in equipment rooms must be
- Neat and orderly
 - Allow access to necessary equipment
 - 36" minimum clearance or per the manufacturer which ever is greater
 - The Fire Code Official is authorized to order removal of any or all materials that pose a hazard.



Section 315.3.3.1

Equipment Rooms

Electrical vaults and equipment rooms are not allowed to have any storage in them.

- These are rooms dedicated to main electrical distribution equipment.
- For more clarification on working space and clearance for electrical equipment see section 604.3



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Equipment Rooms

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604.3 Working space and clearance. A working space of not less than

- 30” in width
- 36” in depth
- 78” in height

shall be provided in front of electrical service equipment.

Storage of materials cannot be located within the working space.

If the equipment is wider than 30” the working clearance is no less than the width of the equipment.

Equipment Rooms

No storage is allowed in elevator equipment or machine rooms



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Photo: Delta Elevator

Equipment Rooms

No storage is allowed in rooms that have shafts open to other floors.

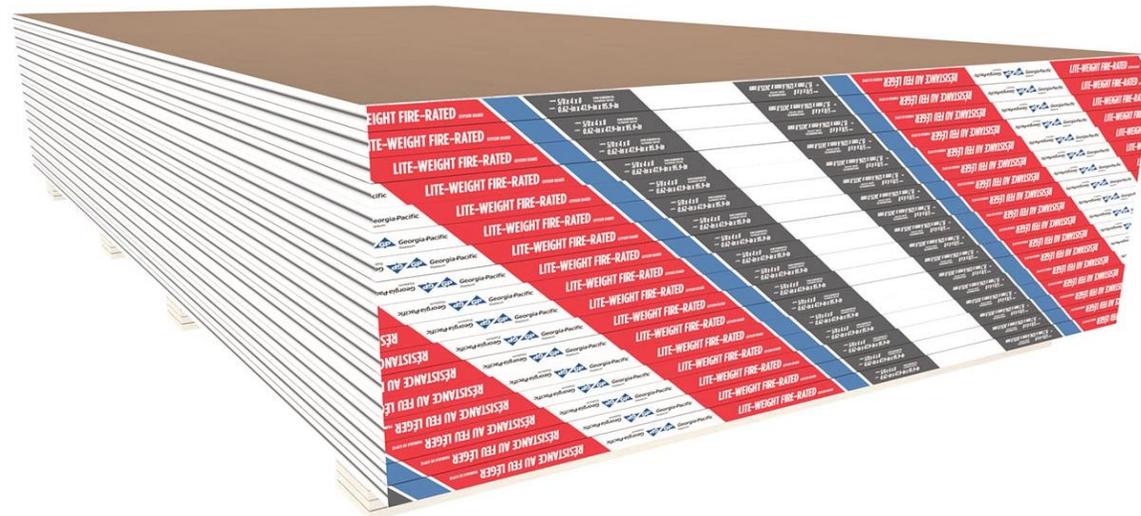


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Attics, Under Floor, and Concealed Spaces

Attic, under-floor and concealed spaces used for storage of combustible materials shall

- protected on the storage side with a minimum 1-hour fire-resistance-rated construction



Attics, Under Floor, and Concealed Spaces

Attic, under-floor and concealed spaces openings must have access panels that are self-closing

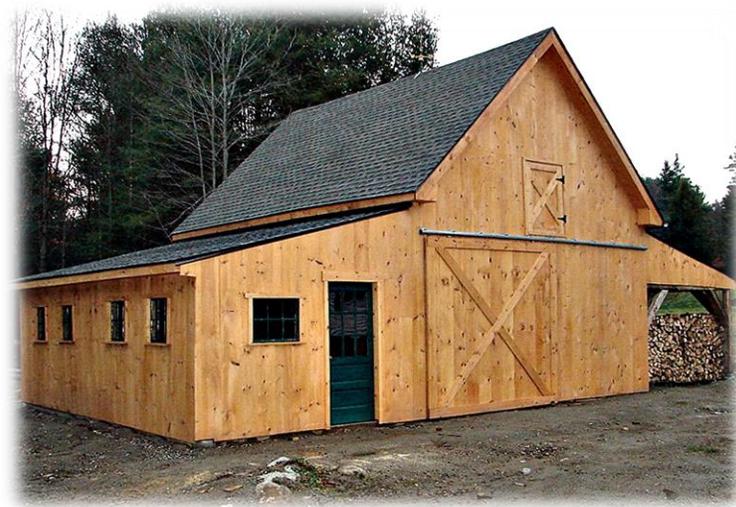
Made of

- noncombustible construction,
or
- solid wood core not less than 1 ¾" inches in thickness,
- Storage shall not be placed on exposed joists.



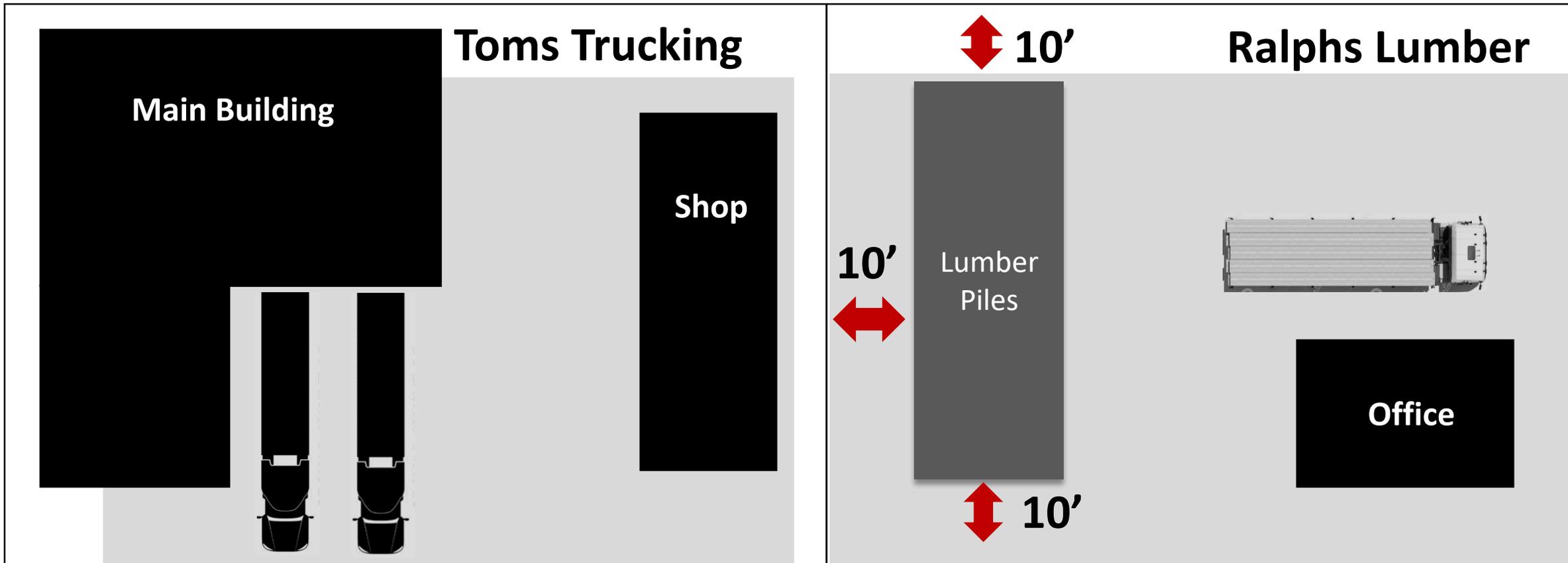
Attics, Under Floor, and Concealed Spaces

- Areas protected by approved automatic sprinkler systems
- Group R-3 and Group U occupancies.



Outside Storage

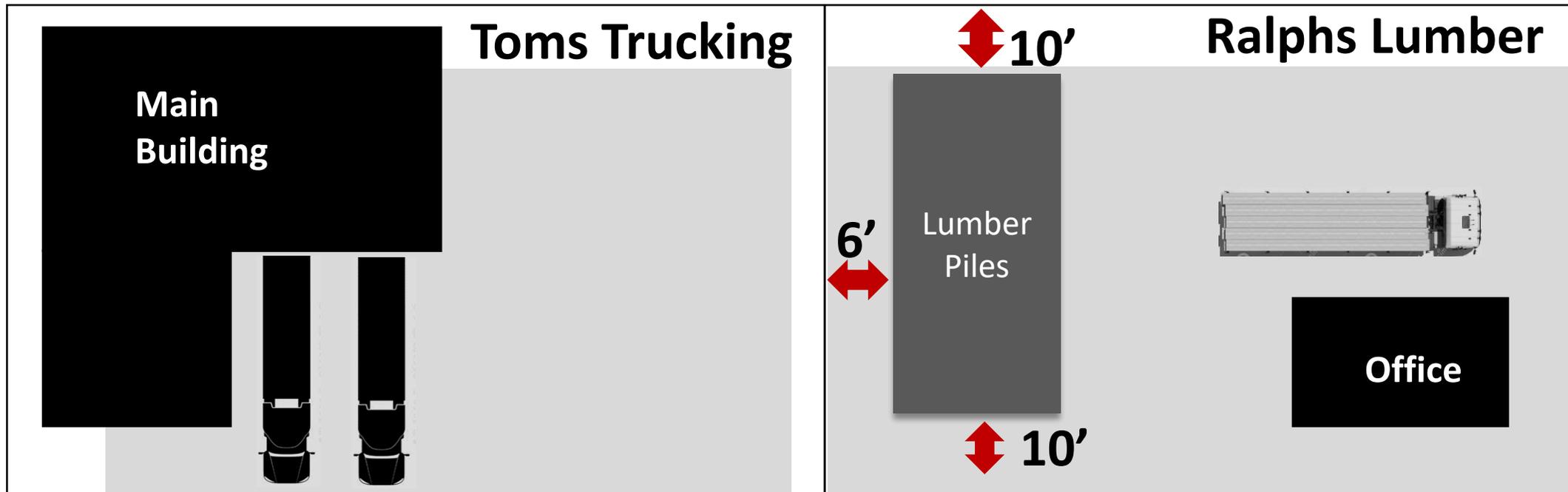
Outside storage of combustible materials shall not be located within 10 feet of a lot line.



Section 315.4

Outside Storage

- The separation distance is allowed to be reduced to 3 feet for storage not exceeding 6 feet in height.
- The separation distance is allowed to be reduced where the fire code official determines that hazard to the adjoining property does not exist.



Overhead projections from Buildings

Storage displays and handling of combustible materials underneath overhead projections is only allowed where the building is protected by an automatic sprinkler system and automatic sprinklers are installed under the overhang, eaves or canopy.



Section 315.4.1

Height

Storage out in the open cannot be higher than 20 feet



Section 315.4.1

High-voltage Transmission Lines

Storage located underneath high-voltage transmission lines shall be in accordance with Section 316.6.2

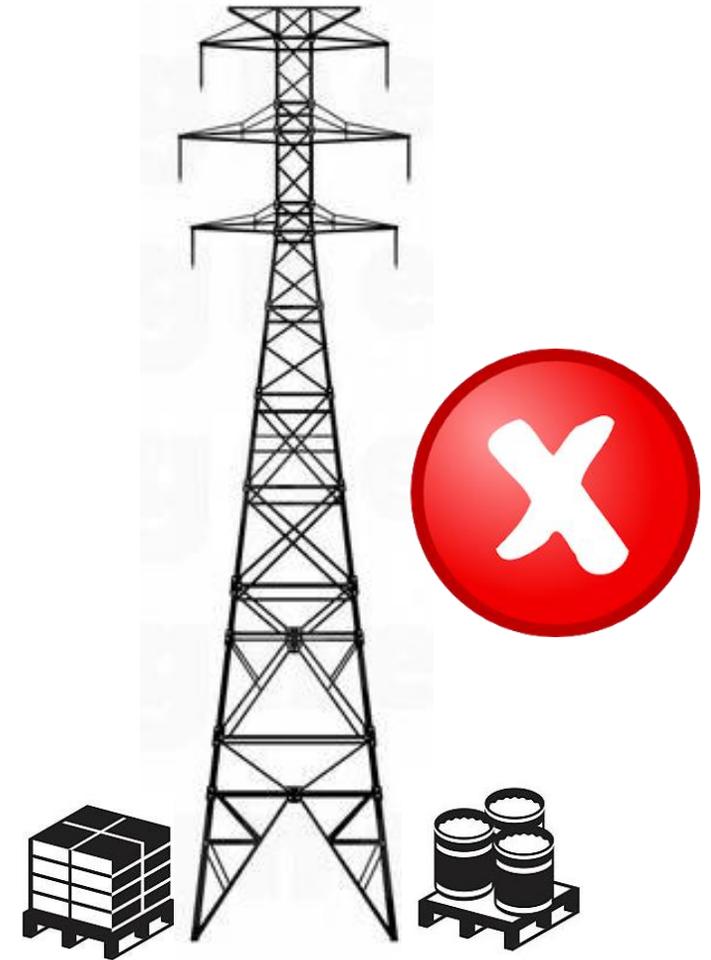
The concern is not that the lines will cause a fire, but rather a fire could potentially cause a service disruption or possible collapse.



Section 315.5

High-voltage Transmission Lines

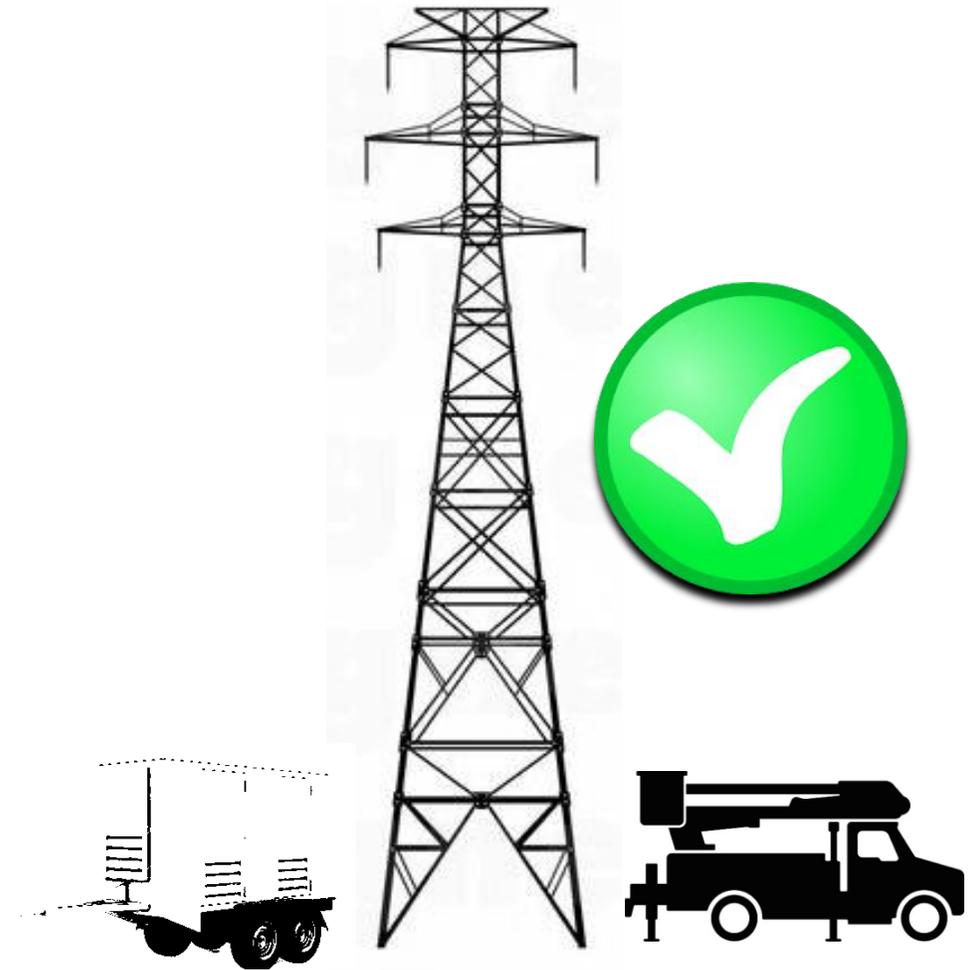
- Outdoor storage within the utility easement underneath high-voltage transmission lines shall be limited to noncombustible material.
- Storage of hazardous materials including, but not limited to, flammable and combustible liquids is prohibited.



Section 316.6.2

High-voltage Transmission Lines

- Combustible storage, including vehicles and fuel storage for backup power equipment serving public utility equipment, is allowed
- Requires a plan to be submitted and approved indicating the storage configuration

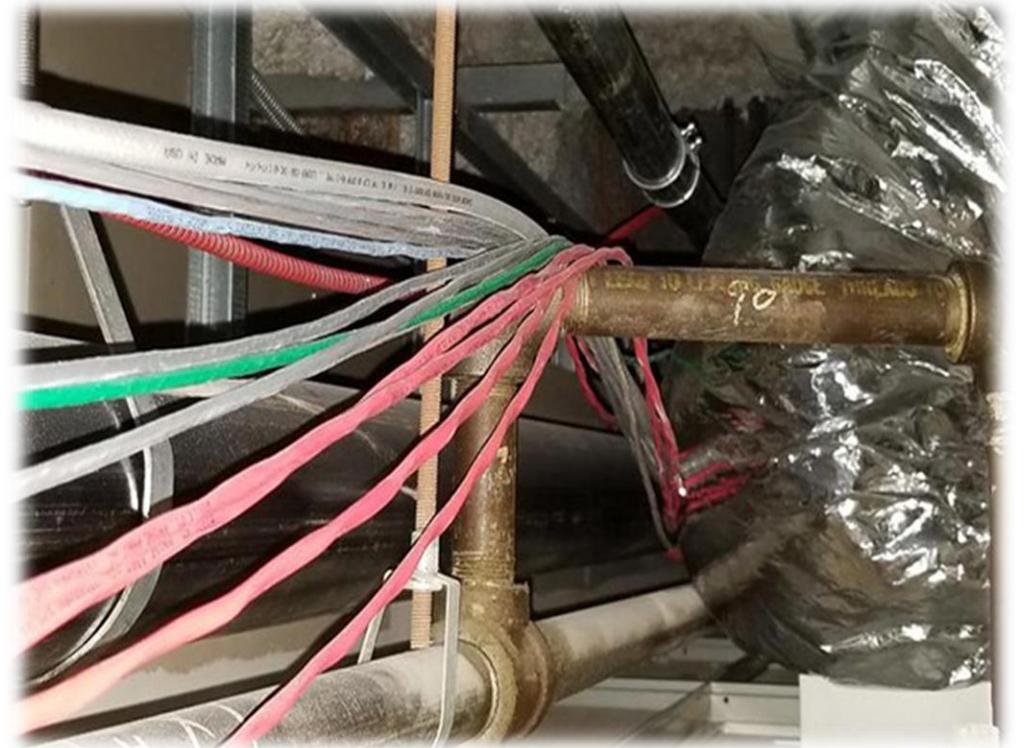


Section 316.6.2 Exception

Storage in Plenum Spaces

Storage is prohibited in plenums.

Abandoned material in plenums shall be deemed to be storage and shall be removed.



Storage in Plenum Spaces

Abandoned cables that are able to be accessed without causing damage, or requiring demolition to the building shall be identified for future use with a tag or shall be deemed storage and shall be removed.

Future use requires a tag or termination on both ends per the NEC



Outdoor Pallet Storage

Pallets stored outdoors shall comply with Sections 315.7.1 through 315.7.7.

Pallets stored within a building shall be protected in accordance with Chapter 32.

NEW MINNESOTA



Section 315.7

Pallet Storage Beneath Overhead Projections from Buildings

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Where buildings are equipped throughout with an automatic sprinkler system, the outdoor storage of pallets under eaves, canopies or other projections or overhangs are prohibited except where automatic sprinklers are installed under such eaves, canopies or other projections or overhangs.



Distance to Lot Lines

Distance to lot line. Pallet storage shall not be located within 10 feet of a lot line.



10 FEET



No Exceptions or approvals

Section 315.7.2

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Stack Separation

Pallet stacks and piles shall be separated in accordance with Sections 315.7.6.1 and 315.7.6.2

315.7.6.1 Separation from buildings

315.7.6.2 Separation from other pallets and on-site storage

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Pallet - Building Separation

Pallet stacks and piles shall be separated from buildings in accordance with Table 315.7.6(1) for wood pallets and Table 315.7.6(2) for plastic pallets.

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Pallet - Building Separation

TABLE 315.7.6(1)
SEPARATION DISTANCE BETWEEN WOOD PALLET STACKS AND BUILDINGS

WALL CONSTRUCTION	OPENING TYPE	WOOD PALLET SEPARATION DISTANCE (feet)		
		≤ 50 Pallets	51 to 200 Pallets	>200 Pallets
Masonry	None	2	2	2
Masonry	Fire-rated glazing with open sprinklers	2	5	20
Masonry	Fire-rated glazing	10	5	20
Masonry	Plain glass with open sprinklers	10	5	20
Noncombustible	None	10	5	20
Wood with open sprinklers	—	10	5	20
Wood	None	15	30	90
Any	Plain glass	15	30	90

For SI: 1 foot = 304.8 mm.

Table 315.7.6(1)

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Pallet - Building Separation

TABLE 315.7.6(2)
SEPARATION DISTANCE BETWEEN PLASTIC PALLET STACKS AND BUILDINGS

WALL CONSTRUCTION	OPENING TYPE	PLASTIC PALLET SEPARATION DISTANCE (feet)		
		≤ 50 Pallets	51 to 200 Pallets	>200 Pallets
Masonry	None	2	2	2
Masonry	Fire-rated glazing with open sprinklers	10	20	50
Masonry	Fire-rated glazing	15	40	100
Masonry	Plain glass with open sprinklers	15	40	100
Noncombustible	None	15	40	100
Wood with open sprinklers	—	15	40	100
Wood	None	30	80	150
Any	Plain glass	30	80	150

For SI: 1 foot = 304.8 mm.

Table 315.7.6(2)

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Pallet - On-Site Storage Separation

Pallets shall be separated from other pallet piles and other storage in accordance with Table 315.7.6(3) for wood pallets and Table 315.7.6(4) for plastic pallets

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Pallet - On-Site Storage Separation

TABLE 315.7.6(3)
SEPARATION FROM OTHER PALLET PILES AND ON-SITE STORAGE (WOOD PALLETS)

	WOOD PALLET SEPARATION DISTANCE (feet)		
	≤ 50 Pallets	51 to 200 Pallets	>200 Pallets
Between pallet piles	7.5	15	45
Other on-site storage	7.5	15	45

For SI: 1 foot = 304.8 mm.

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Pallet - On-Site Storage Separation

TABLE 315.7.6(4)
SEPARATION FROM OTHER PALLET PILES AND ON-SITE STORAGE (PLASTIC PALLETS)

	PLASTIC PALLET SEPARATION DISTANCE (feet)		
	≤ 50 Pallets	51 to 200 Pallets	>200 Pallets
Between pallet piles	15	40	75
Other on-site storage	15	40	75

For SI: 1 foot = 304.8 mm.

Table 315.7.6(4)

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Prohibited Locations

Pallets shall not be stored underneath high-voltage transmission lines, elevated roadways or elevated railways.



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Thank you

MINNESOTA STATE FIRE MARSHAL DIVISION

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